

# **Intel® vPro™ Technology: Cutting IT Costs and Improving Productivity Through Enhanced Manageability**



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## **Intel® vPro™ Technology: Cutting IT Costs and Improving Productivity Through Enhanced Manageability**

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### ***Overview: Easing the Cost of Support***

Intel has recently introduced a solution to one of the oldest problems plaguing enterprise IT departments—the high cost of support for desktop PCs. This labor-intensive job eats into resources and prevents IT from doing projects that add business value. Now, IT administrators can ease the burden of routine PC maintenance by remotely managing, maintaining, and updating business desktop PCs with Intel® vPro™ technology—even if system power is off, the operating system (OS) is inoperative, or software agents are not yet installed.

With Intel vPro technology, many problems can be resolved without ever visiting the desktop. When on-site visits are necessary, advanced information gathered from PCs using Intel vPro technology can help technicians bring the right parts or tools to fix the problem. For users, the benefit is less downtime. Enterprises can also maintain more-accurate inventories, and IT can better enforce compliance to standard desktop configurations.

Productivity is another benefit for IT departments. Less time spent traveling to desktops can free staff to focus on how IT can help the enterprise achieve its goals. After all, that's what IT is really about.

### ***Intel® vPro™ Technology Helps IT Reduce Deskside Visits***

Gartner estimates that the cost of technology support and maintenance can seize as much as 89 percent of a typical enterprise IT budget.<sup>1</sup> That leaves precious few resources available for the higher-level innovation functions that only IT can provide—application development, skills training, systems analysis—to best support business goals. Pinpointing ways to boost IT staff productivity is a key challenge for enterprises, especially those without the ability to remotely manage a large PC environment.

Supporting a maze of distributed desktops is labor-intensive and expensive when routine maintenance, updates, and inventories require desktide visits. Rather than being able to remotely apply a universal patch or correct a software problem from a central location, technicians usually must provide walk-around support. And asset management is still a hunt-and-peck process for technicians who must make manual inventories to control software licensing costs by tracking renewals, avoid excessive end-of-lease fees for missing PCs, and ensure compliance with government regulations. As the enterprise grows, so do the time and cost of these desktide fieldtrips.

The remote management approaches introduced to date still preclude IT from working remotely on the PC if its power is off, the OS is down, or management agents are missing. So a large number of incidents still require a time-consuming, desktide visit by a technician to boot the machine, reinstall agents, fix the operating system, or update software. Clearly, to provide a complete solution to this problem, some combination of hardware and software is required. That is the challenge Intel engineers tackled when they developed Intel vPro technology.

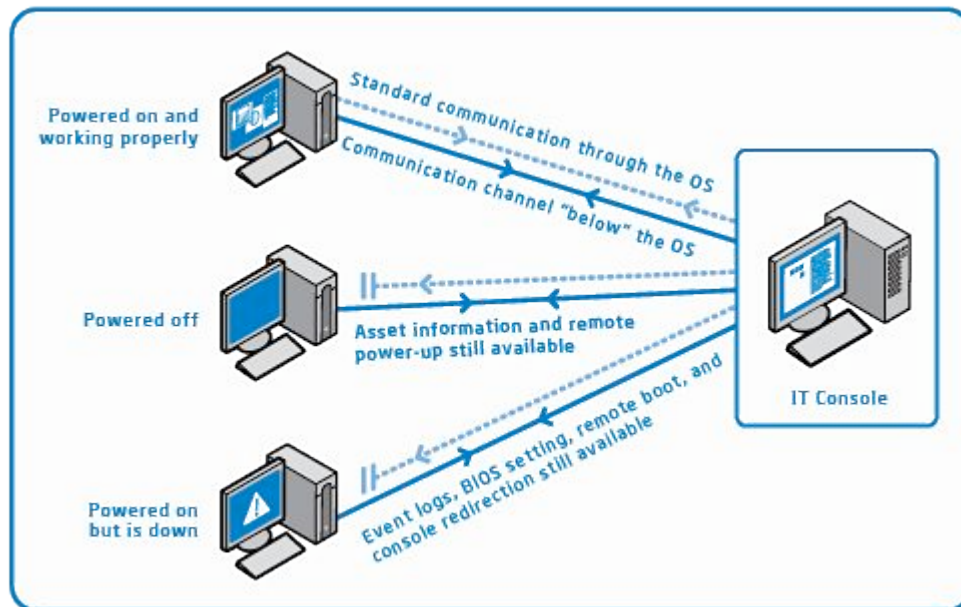
PCs with Intel vPro technology enable remote access by IT support staff regardless of the system state of the PC. The only two requirements are that the PC be plugged in and that the network cable is connected. As a result, many more repairs can be completed remotely, which not only reduces time spent by IT, but also reduces the time that users are without their PCs. Asset management software can take more accurate inventories and ensure configuration compliance—all while minimizing the impact on users.



## Intel® AMT Enables Anytime Access to PCs with Intel® vPro™ Technology

Remote diagnostics and repair can help IT curb spiraling desktide visits, a crucial first step in realigning IT resources to focus more on innovation. The key to anytime remote access to PCs with Intel vPro technology is powerful Intel® Active Management Technology (Intel® AMT),<sup>2</sup> which is built into the system hardware and firmware. Intel AMT provides the following functionality:

- **“Always available” alerts:** Enables the PC to send alerts to the remote management console at any time. This provides immediate policy-based visibility into critical events such as case intrusions, hardware failures and OS lockups.
- **Remote communication:** Allows remote IT technicians to communicate with the PC, even if the OS is down or PC power is off (see Figure 1).
- **Remote power-up:** Allows IT technicians to power up, power down, or reset PCs from the management console.
- **Persistent event logs:** Provide an always-accessible list of events that occurred before a hardware or software problem occurred.
- **Remote boot:** Allows authorized IT technicians to direct the system to boot from a clean image at the help desk or any other remote location.
- **Console redirection:** Enables IT technicians to troubleshoot PCs through built-in serial-over-LAN capabilities without user assistance and without leaving the management console.
- **Access to preboot BIOS settings:** Allows technicians to access configuration information and change settings as needed to help resolve problems.



**Figure 1.** Remote communication channel. The hardware-based communication channel runs outside the OS, so it remains available even when the PC is powered off or its OS is not available.

The hardware capabilities powered by Intel AMT, when combined with industry-enabled software solutions, represent the superior manageability of Intel vPro technology.



**Case Study: Intel® vPro™ Technology Helps EDS Avoid Extraneous Reimaging**

Because of the difficulty in diagnosing and repairing a specific software problem, IT departments have traditionally found it faster to reimage the entire system when one arises—a time-consuming process that often forces users to use temporary replacement PCs. In fact, EDS estimates that 80 to 90 percent of software problems also result in reimaging the system.<sup>3</sup>

By taking advantage of Intel® vPro™ technology for remote problem resolution, EDS can avoid unnecessary reimaging by more quickly determining if a specific software problem can be repaired.

PC maintenance and labor costs are reduced, and user uptime is significantly improved. Based on testing of PCs with Intel vPro technology, EDS expects to reduce desktide reimaging due to software problems by approximately 75 percent. EDS also expects to reduce the number of PC swap-outs for software replacement or total OS reimaging by approximately 75 percent.

For more information on how EDS is taking advantage of PCs with Intel vPro technology, see the white paper titled “Improving Asset Inventories and Reducing IT Costs with Intel® vPro™ Technology” at the Intel Web site.

**Console Redirection Speeds Problem Diagnosis and Treatment**

Using the console redirection capabilities of Intel vPro technology, a technician can watch as the BIOS boots to more accurately identify the failed component—whether hardware or software—when it doesn’t respond during the boot process. Then, if a part needs replacing, technicians can take the correct part with them to the PC. Or, if the entire system needs reimaging, it can be accomplished without visiting the PC. The accuracy of diagnosis is greatly improved because technicians no longer have to rely on the user to describe the problem or engage in a telephone troubleshooting session with the user.

For example, if a user calls the help desk because the system will not boot, IT can remotely boot the PC from another source—such as a CD at the help desk or an image on a server—to determine whether hardware or software is causing the problem. If the technician finds that the OS has been corrupted, the technician can restore the OS and get the user back up and working quickly—all without leaving the help desk.

If the PC appears to have a hardware problem, the technician can remotely retrieve the PC’s manufacturer and model information from nonvolatile memory. This information helps the IT staff know exactly what part needs replacing.

IT outsourcer EDS\* conducted tests in its evaluation labs that showed the company could expect to reduce desktide visits needed to assess and repair hardware problems by 50 percent using PCs with Intel vPro technology.<sup>4</sup> Learn more about how remote remediation helped EDS better address software problems by reading the sidebar “Intel vPro Technology Helps EDS Avoid Extraneous Reimaging.”



**Case in Point: EDS Speeds Patch Deployment with Intel® vPro™ Technology**

When managing PCs with Intel® vPro™ technology for clients, EDS IT staff can remotely install a critical patch even if the system is powered off at the start of the update cycle. The IT administrator first deploys a critical patch to a pilot group—less than 1 percent of the environment—of powered-on PCs. If the patch is successful, the administrator can deploy it to the remainder of the environment.

EDS expects that being able to reach PCs regardless of their power state will help clients significantly reduce the time required to enforce compliance with corporate policies. For example, EDS has extrapolated data from test scenarios to demonstrate that PCs with Intel vPro technology could shorten deployment times for critical patches from five days to approximately four hours for up to 6,000 PCs.<sup>5</sup>

For EDS clients taking advantage of PCs with Intel vPro technology, this could significantly shorten the window of vulnerability to known threats, help reduce remediation requirements, and minimize corporate data loss from malicious attacks.

For more information on how EDS is taking advantage of PCs with Intel vPro technology, see the white paper titled “Improving Asset Inventories and Reducing IT Costs with Intel® vPro™ Technology” at the Intel Web site.

**Intel vPro Technology Helps IT Maintain Consistent, Up-to-Date Software**

Ensuring that enterprise desktops use standard software configurations and have all required updates installed is key to minimizing support costs and maintaining a more secure environment. But keeping large numbers of desktops current with the latest patches and updates can be very labor-intensive. For example, without Intel vPro technology, when IT administrators want to remotely update PC software, the first challenge is making sure the machines are powered up. PCs that are not active require an expensive deskside visit. For updates that require a reboot, user work may need to be interrupted.

PCs with Intel vPro technology can reduce the time required for software installations, updates, and security patches. Because IT staff can access PCs from the management console regardless of PC power state, many updates and other maintenance processes can be automated. Backups, critical patches, and other IT tasks can be scheduled for a time when they do not interrupt users.

To prepare to apply patches to a fleet of PCs, administrators first poll all PCs with Intel vPro technology for their power state. When administrators find a system that is powered down, they can use software, such as Altiris Real-Time System Manager\*, to wake the systems. After installing the patch, administrators can use the Altiris agent to return systems to the power state in which users left them: on, off, hibernating, or sleeping.

**Updating Firmware from the Management Console**

Up-to-date BIOS and firmware versions are crucial to network security and maximizing performance. However, there are few tools available today that automatically track firmware and BIOS revisions and enable remote updates. As a result, these processes can be neglected by busy enterprise IT staffs.

PCs with Intel vPro technology work with remote console software so IT can obtain BIOS and firmware configuration information at any time from the PC and push updates as required. This gives IT a method for proactively updating firmware and BIOS versions to close security gaps and help ensure optimum performance.



**Case in Point: Altiris\* Software Helps IT Take Control**

The combination of Altiris solutions with Intel® Virtualization Technology<sup>6</sup> (an Intel® advanced technology that is part of the Intel® vPro™ technology platform), offers IT a new level of control to improve policy compliance. This addresses one of the biggest impediments to remote PC management: monitoring endpoints to ensure the latest software patches are installed, services and agents are running, and registry settings are unchanged.

Altiris solutions, such as Altiris\* Quarantine Solution (AQS), will soon offer IT a lightweight virtual environment, or “virtual appliance.” This virtual appliance is isolated from the user OS so IT can run manageability tasks in a self-contained, dedicated management space. Because the appliance runs outside the user OS, it is invisible to users, resistant to tampering, and under the control of authorized IT.

On PCs with Intel vPro technology, the Altiris virtual appliance is isolated from the user and monitors patch, agent, and registry information in the user’s environment. If, for example, an agent is not responding, an immediate alert is logged in protected memory and can be sent to the Altiris console.

Once IT is notified, Altiris software can be used to automatically begin an integrity check of the compromised agent. If an agent is turned off but still present and viable, the Altiris virtual appliance will be able to automatically restart the agent—all without IT intervention. Altiris will deliver this virtual appliance as a part of the Altiris Persistent Management solution and the Altiris Quarantine Solution in the first half of 2007.

Visit the Altiris Web site for more about Altiris solutions currently in development for PCs with Intel vPro technology. To read the Altiris Solutions Brief, visit [www.intel.com/vpro](http://www.intel.com/vpro).

**Automation Cuts the Cost of Accurate Inventories**

An accurate inventory of IT assets is necessary to control IT outsourcer costs and meet government accounting mandates. However, because some desktops are turned off or not connected to the network, IT administrators are often unaware of a significant number of systems when they view the network from the management console—forcing IT to perform time-consuming manual audits of enterprise assets.

PCs with Intel vPro technology can be audited remotely whether or not they are powered on, the OS is installed, or even if management agents are disabled or not yet installed. The only requirement is that the PC be connected to a power source and plugged into the network. This helps IT avoid costly on-site audits to validate asset lists and ensure compliance with regulations.

Accurate asset tracking is especially important to EDS, which estimates that PCs with Intel vPro technology will reduce manual inventories for clients by 90 percent.<sup>7</sup> For example, assume that an EDS client company deployed 6,000 PCs with Intel vPro technology. EDS can now remotely identify the new PCs and then use the remote boot capability to provision the PC. As soon as EDS pushes the standard management agent to the PCs, it can remotely inventory each PC plugged into the network.



## **Increasing End-of-Lease Inventory Accuracy**

Further highlighting the importance of having more accurate inventories, assets reported as missing at the end of an equipment lease often must be purchased, which can result in significant expense. For example, EDS examined the audit records for one client with 43,000 PCs. After an exhaustive manual inventory at the end of a 2005 lease agreement, the client reported nearly 3,000 missing, damaged, lost, or stolen PCs. The total cost to buy out the missing assets was approximately US \$1.5 million.

PCs with Intel vPro technology enable more accurate PC inventory processes to minimize lost assets, end-of-life service fees, and time spent performing manual inventories. At the same time, remote boot and console redirection capabilities help IT make the best financial decision about repairing machines or buying them out at the end of a lease agreement.

## **Summary**

Enterprise IT departments can take advantage of the new, hardware-based remote management capabilities in PCs with Intel vPro technology to improve the efficiency of diagnosing and repairing malfunctioning systems while reducing deskside visits.

PCs with Intel vPro technology also help increase the accuracy and thoroughness of PC and asset inventories, from initial deployment through the end of the lease agreement. This will help IT departments update maintenance services and software licensing to better match actual corporate needs. In addition, by helping IT maintain consistent configurations across the enterprise remotely, these PCs can help enterprises streamline key processes and increase user uptime.

Combined, the enhanced management capabilities of PCs with Intel vPro technology can help IT departments spend less time on day-to-day maintenance and more on contributing to innovative business processes that increase corporate efficiency.

## **More Info**

For more information on Intel vPro technology, visit the Intel Web site.

To learn more about EDS and its support for PCs with Intel vPro technology, visit the EDS Web site and read the Intel white paper “Improving Asset Inventories and Reducing IT Costs with Intel® vPro™ Technology.”

Discover more about the work Altiris and Intel are doing at the Altiris Web site, or read the solution brief “Altiris\* Solutions for PCs with Intel® vPro™ Technology.”





## Notes

<sup>1</sup> *Growing IT Trend's Contribution: The 2006 CIO Agenda*, Gartner. 2006.

<sup>2</sup> PCs with Intel vPro technology include Intel® Active Management Technology (Intel® AMT) and Intel Virtualization Technology (Intel® VT). Intel AMT requires the computer to have an Intel AMT-enabled chipset, network hardware and software, connection with a power source, and a network connection. Intel® VT requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain platform software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

<sup>3</sup> "Improving Asset Inventories and Reducing IT Costs with Intel® vPro™ Technology," Intel Corporation. 2006.

<sup>4</sup> "Improving Asset Inventories and Reducing IT Costs with Intel® vPro™ Technology," Intel Corporation. 2006.

<sup>5</sup> "Improving Asset Inventories and Reducing IT Costs with Intel® vPro™ Technology," Intel Corporation. 2006.

<sup>6</sup> PCs with Intel vPro technology include Intel® Active Management Technology (Intel® AMT) and Intel Virtualization Technology (Intel® VT). Intel AMT requires the computer to have an Intel AMT-enabled chipset, network hardware and software, connection with a power source, and a network connection. Intel® VT requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain platform software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

<sup>7</sup> "Improving Asset Inventories and Reducing IT Costs with Intel® vPro™ Technology," Intel Corporation. 2006.

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